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SOININEN ET AL.

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Examiner: L. WANG

Title: IP ROUTING OPTIMIZATION IN AN ACCESS NETWORK

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REPLY BRIEF

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In reply to the Examiner's Answer dated November 2, 2006, Appellants respectfully request consideration of the following remarks.

It is respectfully submitted that the Leung patent (U.S. Pat. No. 6,195,705) fails to disclose, teach or suggest the features of claim 1, and its dependent claims, for the reasons set forth in Appellants' brief dated June 19, 2006 (hereinafter "Appellants' brief").

Claim 1 and its dependent claims recite "a method of providing macro mobility management for a mobile node in an access system comprising a plurality of mobile nodes, a first and a second access node serving said mobile nodes within first and second parts of the access system, respectively, at least one first gateway node for interfacing said first part of the access system with external networks, and a first mobility entity which is associated with said at least one first gateway node and arranged to provide macro mobility management routing services to the mobile nodes while registered to the first part of the access system, said method comprising: establishing a session between one of said plurality of mobile nodes and a second party via said first access node and said first mobility entity; checking whether there is at least one second mobility entity to which the first access node can establish a connection as an alternative for the first mobility entity and which is more preferred for the first access node in respect of routing than said first mobility entity; and reacting to said checking by A) maintaining a connection from said first access node to said first mobility entity if there is no second mobility entity which is more preferred than said first one, and B) opening new connection from said first access node to said second mobility entity if said more preferred second mobility entity is available, and initiating macro mobility management registration."

It is respectfully submitted that the Examiner has a fundamental misunderstanding of the disclosure of Leung. In particular, Appellants respectfully submit that the reasons provided by the Examiner for establishing a *prima facie* case of anticipation are based on a mischaracterization of Leung's teachings and, in particular, on an improper and inconsistent use of the various elements (*e.g.*, home agent and virtual home agent) disclosed in Leung.

In response to Appellants' brief, the Examiner maintained that home agents HA1 206, HA2 204 of Leung correspond to, respectively, the first and second access nodes of claim 1 and that the home virtual agent HAV1 202 and the router R1 of Leung correspond, respectively, to the first mobility entity and the gateway access node of claim 1. Appellants respectfully disagree.

As discussed in Appellants' brief, home agents HA1 206, HA2 204 are routers, which, when active, operate as mobile IP entities, i.e. macro mobility level entities. Similarly, foreign agent 10 of Leung is a router that operates as a mobile IP entity. Operation of a router as a mobile IP entity (home agent) is implemented such that home agents HA1 206, HA2 204 emulate virtual home agent HAV1 202 and virtual home agent HAV2 208, respectively. (*See, e.g.*, col. 7, lines 43-46 of Leung). As such, virtual home agent HAV1 202 of Leung merely corresponds to the primary and main functionality of home agent HA1 206. In Leung's terms, home agent HA1 206 is the name of the physical device and virtual home agent HAV1 202 is its function. (*See, e.g.*, col. 7, lines 37-49 of Leung).

Accordingly, contrary to what is asserted in the Examiner's answer, home virtual agent HAV1 202 is associated with home agent HA1 206. Furthermore, by virtue of identifying home agent HA1 206, virtual home agent HAV1 202 and foreign agent 10 as being, respectively, "the first access node," the "first mobility entity" and the "second party" of claim 1, the Examiner implicitly acknowledged that mobility agent HAV1 is associated with first access node HA1 because Leung teaches that virtual home agent HAV1 (*i.e.*, item 202) is a virtual facade that is emulated by router/home agent 206. Claim 1 requires that the first mobility entity be associated with the first gateway node, which interfaces the first part of the access system with external networks, not with the first access node. Thus, the Examiner's interpretation of Leung is improper and clearly contradicts Leung's teachings.

The Examiner's answer maintained that router R1 of Leung corresponds to the at least one first gateway node for interfacing the first part of the access system with external networks, as recited in claim 1. (*See, e.g.*, paragraph 7 of the Final Office Action). The Examiner also alleged that FIG. 2B of Leung shows a first mobility entity (identified in the Final Office Action as the "virtual Home Agent HAV1 202") associated with the first gateway (identified in the Final Office Action as element router "R1" of Leung) of claim 1. (*See, e.g.*, paragraph 7 of the Final Office Action). Appellants respectfully disagree with this determination. As mentioned previously, the virtual home agent HAV1 202 is a virtual facade that is emulated by router/home agent 206, which router/home agent 206 has already been identified by the Examiner as being the first access node of claim 1. The configuration asserted by the Examiner does not in any way correspond to the network architecture defined in claim 1.

In response to Appellants' brief, the Examiner alleged that "Leung teaches establishing a session between one of the plurality of mobile nodes ... and a second party."

(See page 8, paragraph 3 of the Examiner's Answer). Appellants respectfully disagree with this determination. Unlike claim 1, Leung merely shows a tunnel, *i.e.*, a transfer of packets, provided between home agent 206 and foreign agent 10 when the mobile node 6 is removed from the network segment 212 and attached to the network segment 14. This tunnel or transfer of packets is between two mobile IP network entities, not between a mobile node and a second party via the first access node and the first mobility entity, as required by claim 1.

In response to Appellants' brief, the Examiner indicated at paragraph 4, page 9 of the Examiner's answer that "the Examiner interprets the claims as 'determining, checking or identifying if there is a second mobility entity that would act as an alternative or backup for the first mobility entity to the first access node.'" The Examiner then referred to col. 4, lines 27-39 and col. 8, lines 51-59 of Leung as allegedly disclosing, teaching or suggesting the features of checking whether there is at least one second mobility entity to which the first access node can establish a connection as an alternative for the first mobility entity and which is more preferred for the first access node in respect to routing than said first mobility entity, as recited in claim 1 and its dependent claims. Respectfully, those cited portions of Leung are silent as to these features. In addition, it is respectfully submitted that the Examiner's interpretation of Leung is incorrect.

Virtual home agent HAV2 208 of Leung is not a standby unit of virtual home agent HAV1 202, as erroneously alleged by the Examiner. On the contrary, Leung teaches that home agent HA2 204 is a standby unit of home agent HA1 206. Leung discloses that if home agent HA1 206 fails to operate, *i.e.*, fails to emulate virtual home agent HAV1 202, home agent HA2 204 starts emulating HAV1 202. Thus, in accordance with Leung's teachings, virtual home agent HAV1 202 remains unchanged when home agent HA1 206 fails. Leung merely teaches changing the router/home agent that emulates virtual home agent HAV1 202 when home agent HA1 206 fails. Contrary to the Examiner's allegation, Leung does not disclose, teach or suggest checking whether there is a second mobility agent to which the first access node (identified by the Examiner as "HA1 206" of Leung) can establish a connection as an alternative to the first mobility entity (identified by the Examiner as "HAV1 202" of Leung) and which is more preferred for the first access node in respect to routing than the first mobility entity. In Leung, home agent HA1 206 (identified by the Examiner as "the first access node" of claim 1) must fail before home agent HA2 204 (identified by the Examiner as "the second access node" of claim 1) starts emulating virtual home agent HAV1 202 (identified by the Examiner as the "first mobility entity" of claim 1). However, home agent

HA1 206 does not execute any operation after it fails. In particular, home agent HA1 206 is incapable of connecting to a second mobility entity.

Appellants respectfully submit that second virtual home agent HAV2 208 does not correspond, in any way, to a second mobility entity. Second virtual home agent HAV2 208 remains associated with home agent HA2 204 even when home agent HA2 204 starts emulating virtual home agent HAV1 202 as a result of the failure of home agent HA1 206. Virtual home agent HAV2 208 is not a backup of virtual home agent HAV1 202 and does not assume the role of home agent for group 214, as erroneously alleged by the Examiner.

In response to Appellants' brief, the Examiner referred to col. 4, lines 17-39 and col. 8, lines 51-59 of Leung as allegedly disclosing, teaching or suggesting the features of A) maintaining a connection from said first access node to said first mobility entity if there is no second mobility entity which is more preferred than said first one, and B) opening a new connection from said first access node to said second mobility entity if said more preferred second mobility entity is available, and initiating macro mobility management registration, as recited in claim 1 and its dependent claims. Respectfully, those cited portions are silent as to these features.

As discussed previously, virtual home agent HAV2 208 does not correspond to the second mobility entity of claim 1 and is not a backup of virtual home agent HAV1 202. Nor does virtual home agent HAV2 214 assume the role of home agent for group 214, as erroneously alleged by the Examiner. Virtual home agent HAV2 208 is not involved if home agent HA1 206 fails. As mentioned previously, if home agent HA1 206 fails, home agent HA2 emulates virtual home agent HAV1 (identified by the Examiner as "the first mobility entity" of claim 1). However, if home agent HA1 fails, it is out of order and thus incapable of providing connections to any second mobility entity, as erroneously alleged by the Examiner.

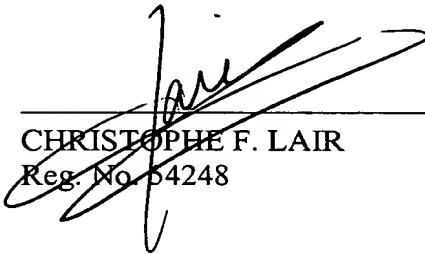
Thus, Leung cannot anticipate claim 1 and its dependent claims. For at least similar reasons, Leung cannot anticipate claims 10, 21 and 35 and their dependent claims.

Accordingly, the rejections of claims 1-4, 10, 21-22 and 35 under 35 U.S.C. 102(e) as being allegedly anticipated by Leung must be withdrawn.

Appellants respectfully request this Honorable Board to reverse the rejection of these claims and direct that the claims be passed to issue.

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